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REMARKS

Claims 1-22 are pending in the present application. Reconsideration is respectfully requested for the following reasons.

Applicants would like to thank the Examiner for taking the time for a telephone interview on April 27, 2006. During that interview, the Examiner stated that claims 2-5, 9-12 and 16-20 have been allowed. Furthermore, Applicants presented arguments that the inclusion of the term “capabilities” in the claims is a positive limitation. The Examiner indicated that he would address these arguments when a response is filed.

The Office Action has objected to the title of the present application. Accordingly, the title of the present application has been amended to be “VEHICLE CONTROL.” Applicants therefore respectfully submit that the objection to the title is obviated.

The Office Action includes a discussion on the language of the claims and references two patents and a publication. However, since none of the claims were rejected as being indefinite and the two patents and the publications cited were not used to reject any of the claims, Applicants do not believe that any response to this portion of the Office Action is required.

Claims 1, 6-8, 13-15, 21 and 22 have been rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,794,735 to Sigl. In order to establish a prima facie case of obviousness, three basic criteria must be met, according to the Manual of Patent Examining Procedure, §706.02(j). These three are repeated as follows. Firstly, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Secondly, there must be a reasonable expectation of success. Thirdly, the prior art reference (or references) must teach or suggest all the claim limitations. Applicant respectfully asserts that the Examiner has not met his burden of establishing a prima facie case of obviousness with respect to the rejected claims. Consequently, the rejection of the subject claims is inappropriate, and should be withdrawn.

Claim 1 defines a method of controlling a vehicle comprising inputting an intended driving demand to a vehicle motion control subsystem, with the intended driving demand

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requesting a vehicle behavior modification. The method also includes providing a plurality of coordinator subsystems, providing at least one actuator control subsystem for each coordinator subsystem, outputting actuator capabilities of the at least one actuator control subsystem to an associated one of the plurality of coordinator subsystems, outputting coordinator capabilities of each coordinator subsystem to the vehicle motion control subsystem, and calculating at least one coordinator demand signal with the vehicle motion control subsystem, with the at least one coordinator demand signal being determined according to the coordinator capabilities and the intended driving demand. The method further includes outputting the at least one coordinator demand signal to at least one of the coordinator subsystems and calculating at least one actuator demand signal with each of the at least one of the coordinator subsystems. The at least one actuator demand signal is determined according to the actuator capabilities and the at least one coordinator demand signal outputted to the at least one of the coordinator subsystems. The method also includes outputting the at least one actuator demand signal to the at least one actuator control subsystem. A combination of each at least one actuator demand signal provides directions for the at least one actuator control subsystem to perform the vehicle behavior modification of the intended driving demand.

The prior art of record does not disclose or suggest the above noted features of claim 1. As an initial matter, Applicants respectfully request the Examiner to review previous responses filed by Applicants as well as the appeal brief filed by Applicants as almost all of the issues presented to reject the claims by the Examiner were addressed in those previously filed papers, wherein the previous Examiner allowed the application as currently pending. Furthermore, the Office Action is very confusing and Applicants request clarification in the next Office communication. For example, in the rejection of claims 1, 8, 21 and 22, the Examiner cites the Sigl '735 patent as disclosing shifting a gear, steering, and a suspension coordinator subsystem. However, none of these items can be found anywhere in the Sigl '735 patent. Furthermore, it appears that the Office Action has identified one element in the Sigl '735 patent as both a plurality of coordinator subsystems and at least one actuator control subsystem for each coordinator subsystem. However, since claim 1 states that the method includes outputting actuator capabilities of the at least one actuator control system to an associated one

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of the plurality of coordinator subsystems, these two elements cannot be one single element as disclosed in the Sigl '735 patent.

Applicants submit that claim 1 defines a communication scheme that is not disclosed or suggested in the Sigl '735 patent. The Office Action appears to state that the Sigl '735 patent includes subsystems that have information inputted into them and outputted out of them. However, the Office Action has not shown the correspondence in the Sigl '735 patent as claimed in claim 1. Accordingly, Applicants respectfully request at least one example from the Examiner in the next Office Action if the Examiner maintains the present rejection. Applicants note that the Examiner is required to describe how the reference covers the claim if the reference is complex, and Applicants request that the Examiner define the particular part as disclosed in the Sigl '735 patent used to reject the elements of the claims and clearly explain how the parts of the Sigl '735 patent interact as required by 37 CFR §1.104(c)(2).

Nevertheless, in regard to the first criterion of obviousness, there is no suggestion or motivation for modifying the Sigl '735 patent as set forth in the Office Action. As an initial matter, Applicants note that the modification of the Sigl '735 patent as set forth in the Office Action is very confusing. Applicants are unsure if the Examiner is stating that the elements not expressly disclosed in the Sigl '735 patent are inherently disclosed in the Sigl '735 patent. Applicants submit that these elements are not inherently disclosed, and furthermore, Applicants submit that the Office Action has not set forth a proper case for inherency. Furthermore, Applicants are unable to determine from the Office Action the modification to the Sigl '735 patent and how such modification would include all of the features of claim 1. According to the Office Action:

It would be obvious to one with ordinary skill in the art at the time this invention was made to expressly disclose about "an actuator capability" to further define what that particular actuator is in a vehicle for an advantage of informing a relationship between a particular signal and its destination in order to contribute a vehicle controlling signal according to a driver.

First, Applicants is unable to determine the modification to the Sigl '735 patent. According to the Office Action, it would have been obvious to "expressly disclose about 'an

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actuator capability’ to further define what that particular actuator is in a vehicle.” Applicants are unsure what this modification is and how it would include the portions of claim 1 not included in the Sigl ‘735 patent. Second, Applicants do not understand the motivation for making this change. According to the Office Action, such a modification is made “for an advantage of and forming a relationship between a particular signal and its destination in order to contribute a vehicle controlling signal according to a driver.” Applicants respectfully request clarification of this motivation as it appears that the Examiner has stated that the Sigl ‘735 patent is not fully enabling.

In regard to the third criterion of obviousness, the prior art of record does not disclose or suggest the above noted features of claim 1. First, the Office Action has not set forth where the Sigl ‘735 patent discloses or suggests outputting coordinator capabilities of each coordinator subsystem to the vehicle motion control subsystem as claimed in claim 1. Second, even if the Sigl ‘735 patent was modified to “expressly disclose about ‘an actuator capability,’” such an express disclosure would not result in a disclosure or suggestion for any of the elements of claim 1 stated in the Office Action as being absent from the Sigl ‘735 patent. Accordingly, claim 1 is in condition for allowance.

Claim 6 depends from claim 1 and further includes inputting actuator state measurements into the at least one actuator control subsystem wherein the actuator capabilities of the at least one actuator control subsystem are determined according to the actuator state measurements.

The Office Action apparently ignores or dismisses this all of these elements of claim 6 by stating:

[I]t has been held that the recitation that an element is “capabilities” perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 USPQ 138.

However, the Office Action’s rejection of claim 6 on the grounds cited above is improper on several grounds.

First, *In re Hutchison* does not state that a recitation that an element is “capable” of performing a function is not a positive limitation and only requires the ability to so perform

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when applied to method claims. *In re Hutchison* states that the use of language in a claim including “adapted for use” and “capable of being machined” in an article claim does not constitute a limitation in any patentable sense. However, claim 6 is a method claim and therefore *In re Hutchison* does not apply.

Second, the Office Action has not compared the facts in *In re Hutchison* and explain why, based upon this comparison, the legal conclusion in the present case should be the same as that in *In re Hutchison* as required by M.P.E.P. §2144. Instead, the Office Action has relied on a *per se* rule that any use of the term “capabilities” is not a positive limitation but only requires the ability to so perform and that it does not constitute a limitation in any patentable sense. However, it is clear that “reliance on *per se* rules of obviousness is legally incorrect and must cease.” *In re Ochiai*, 37 U.S.P.Q.2d 1127, 1133 (Fed. Cir. 1995).

Finally, and most importantly, claim 6 does not state that the actuator is capable of performing some function. Instead, the use of the term “capabilities” in claim 6 refers to the information outputted. Applicants submit that in the present application the term “actuator capabilities” relate to information that is utilized by the at least one coordinator subsystem to calculate an actuator demand signal. The Sigl ‘735 patent does not disclose any element that outputs capabilities of the element or that calculates any signals determined according to the capabilities of any element.

Furthermore, the Sigl ‘735 patent does not disclose the above noted features of claim 6. Specifically, as discussed above, the Sigl ‘735 patent does not disclose determining actuator capabilities. Moreover, the Sigl ‘735 patent does not disclose that the actuator capabilities of the at least one actuator control subsystem are determined according to the actuator state measurements. Accordingly, claim 6 is in condition for allowance.

Claim 7 depends from claims 1 and 6, and further defines the method of controlling a vehicle by stating that the coordinator capabilities for the associated one of the plurality of coordinator subsystems are determined according to the actuator capabilities of the at least one actuator control subsystem outputting the actuator capabilities to the associated one of the plurality of coordinator subsystems. The Sigl ‘735 patent does not disclose the above noted features of claim 7. Specifically, as discussed above, the Sigl ‘735 patent does not disclose

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determining coordinator capabilities, determining actuator capabilities or outputting actuator capabilities. Furthermore, the Sigl '735 patent does not disclose that the coordinator capabilities for the associated one of the plurality of coordinator subsystems are determined according to the actuator capabilities of the at least one actuator control subsystem outputting the actuator capabilities to the associated one of the plurality of coordinator subsystems. Accordingly, claim 7 is in condition for allowance.

Claim 8 defines a vehicle control system comprising a vehicle motion control subsystem having a control input and a control output, with the control input communicating an intended driving demand to the vehicle motion control subsystem, and with the intended driving demand requesting a vehicle behavior modification. The vehicle control system also includes a plurality of coordinator subsystems, with each coordinator subsystem including a coordinator input and a coordinator output. Each coordinator subsystem communicates coordinator capabilities of the coordinator subsystem to the control input of the vehicle motion control subsystem and at least one actuator control subsystem for each coordinator subsystem. Each actuator control subsystem has an actuator output communicating actuator capabilities of the actuator control subsystem to the coordinator input of an associated one of the plurality of coordinator subsystems. The vehicle motion control subsystem calculates at least one coordinator demand signal, with the at least one coordinator demand signal being determined according to the coordinator capabilities and the intended driving demand. The vehicle motion control subsystem outputs the at least one coordinator demand signal to the coordinator input of at least one of the coordinator subsystems. Each coordinator subsystem calculates at least one actuator demand signal, with the at least one actuator demand signal being determined according to the actuator capabilities and the at least one coordinator demand signal outputted to the at least one of the coordinator subsystems. Each coordinator subsystem outputs the at least one actuator demand signal to at least one actuator control subsystem. A combination of each at least one actuator demand signal provides directions for the at least one actuator control subsystem to perform the vehicle behavior modification of the intended driving demand.

The prior art of record does not disclose or suggest the above noted features of claim 8. As an initial matter, Applicants submit that the rejection of claim 8 includes all of the

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deficiencies of the rejection of claim 1 as outlined above. Accordingly, Applicants submit that the Office Action has not met the burden of rejecting claim 8, there is no suggestion or motivation for making the modification as set forth in the Office Action, and a modification as set forth in the Office Action would not include all of the features of claim 8. Notably, the Office Action has not stated where the Sigl '735 patent discloses or suggests a coordinator subsystem communicating coordinator capabilities of the coordinator subsystem to a control input of a vehicle motion control subsystem. Accordingly, claim 8 is in condition for allowance.

Claims 13 and 14 depend from claim 8, and since claim 8 defines patentable subject matter as discussed above, claims 13 and 14 define patentable subject matter.

Furthermore, claim 13 depends from claim 8, and further defines the vehicle control system by stating that actuator state measurements are input into the at least one actuator control subsystem, and the actuator capabilities of the at least one actuator control subsystem are determined according to the actuator state measurements. The Sigl '735 patent does not disclose the above noted features of claim 13. Specifically, as discussed above, the Sigl '735 patent does not disclose determining actuator capabilities. Furthermore, the Sigl '735 patent does not disclose that the actuator capabilities of the at least one actuator control subsystem are determined according to the actuator state measurements. Moreover, Applicants submit that the Office Action has improperly used *In re Hutchinson* to reject claim 13 in the same manner that was improperly used to reject claim 6. Accordingly, claim 13 is in condition for allowance.

Moreover, claim 14 depends from claims 1 and 13, and further defines the vehicle control system by stating that the coordinator capabilities for the associated one of the plurality of coordinator subsystems are determined according to the actuator capabilities of the at least one actuator control subsystem outputting the actuator capabilities to the associated one of the plurality of coordinator subsystems. The Sigl '735 patent does not disclose the above noted features of claim 14. Specifically, as discussed above, the Sigl '735 patent does not disclose coordinator capabilities or determining actuator capabilities. Furthermore, the Sigl '735 patent does not disclose that the coordinator capabilities for the associated one of the plurality of

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coordinator subsystems are determined according to the actuator capabilities of the at least one actuator control subsystem outputting the actuator capabilities to the associated one of the plurality of coordinator subsystems. Moreover, Applicants submit that the Office Action has improperly used *In re Hutchinson* to reject claim 14 in the same manner that was improperly used to reject claim 6. Accordingly, claim 14 is in condition for allowance.

Claim 15 defines a method of controlling a vehicle including, among other things, receiving at least one driver input from a driver of the vehicle and providing at least one active assist program having at least one active input, with the at least one active assist program having an on setting wherein the at least one active assist program outputs at least one active input and an off setting wherein the at least one active assist program does not output at least one active input. The method further includes inputting an intended driving demand for implementing a vehicle behavior modification into a vehicle motion control subsystem, providing an implementation subsystem, and outputting at least a portion of the intended driving demand from the vehicle motion control subsystem to the implementation subsystem. The intended driving demand is derived from a combination of the at least one driver input and the at least one active input if the at least one active assist program is in the on setting and if the driver of the vehicle does not overrule the at least one active assist program, otherwise the intended driving demand is derived from the at least one driver input.

The prior art of record does not disclose or suggest the above noted features of claim 15. Specifically, the Sigl '735 patent does not disclose an intended driving demand derived from a combination of at least one driver input and at least one active input if an at least one active assist program is in an on setting and if the driver of the vehicle does not overrule the at least one active assist program, otherwise the intended driving demand is derived from the at least one driver input. According to claim 15, the intended driving demand can only be derived from (1) a combination of the at least one driver input and the at least one active input, if the at least one active assist program is in the on setting and if the driver of the vehicle does not overrule the at least one active assist program, or (2) the at least one driver input. However, the Sigl '735 patent discloses directions to the device 14 wherein the operating control element 44 overrules the signal in the output line 12 even if the driver controls the

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engine output by actuating the gas pedal above the maximum speed set by the operating control element 44. Therefore, in this situation, any active assist program is in the on setting and the driver of the vehicle overrules the at least one active assist program. However, in this situation, any intended driving demand is not derived from at least one driver input. The intended driving demand is derived from the single output of the operating control element 44. Accordingly, claim 15 is in condition for allowance.

Claim 21 defines a method of controlling a vehicle comprising inputting an intended driving demand to a vehicle motion control subsystem, with the intended driving demand requesting a vehicle behavior modification. The method also includes providing a plurality of coordinator subsystems, providing at least one actuator control subsystem for each coordinator subsystem, outputting information concerning actuator limitations of the at least one actuator control subsystem to an associated one of the plurality of coordinator subsystems, outputting information concerning coordinator limitations of each coordinator subsystem to the vehicle motion control subsystem and calculating at least one coordinator demand signal with the vehicle motion control subsystem. The at least one coordinator demand signal is determined according to the information concerning coordinator limitations and the intended driving demand. The method further includes outputting the at least one coordinator demand signal to at least one of the coordinator subsystems and calculating at least one actuator demand signal with each of the at least one of the coordinator subsystems. The at least one actuator demand signal is determined according to the information concerning actuator limitations and the at least one coordinator demand signal outputted to the at least one of the coordinator subsystems and outputting the at least one actuator demand signal to the at least one actuator control subsystem. A combination of each at least one actuator demand signal provides directions for the at least one actuator control subsystem to perform the vehicle behavior modification of the intended driving demand.

The prior art of record does not disclose or suggest the above noted features of claim 21. As an initial matter, Applicants submit that the rejection of claim 21 includes all of the deficiencies of the rejection of claim 1 as outlined above. Accordingly, Applicants submit that as the Office Action has not met the burden of rejecting claim 21, there is no suggestion or

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motivation for making the modification as set forth in the Office Action, and a modification as set forth in the Office Action would not include all of the features of claim 21. Notably, the Office Action has not stated where the Sigl '735 patent discloses or suggests outputting information concerning actuator limitations of the at least one actuator control subsystem to an associated one of the plurality of coordinator subsystems or outputting information concerning coordinator limitations of each coordinator subsystem to the vehicle motion control subsystem. Accordingly, claim 21 is in condition for allowance.

Claim 22 defines a vehicle control system comprising a vehicle motion control subsystem having a control input and a control output with the control input communicating an intended driving demand to the vehicle motion control subsystem, and with the intended driving demand requesting a vehicle behavior modification. The vehicle control system also includes a plurality of coordinator subsystems, with each coordinator subsystem including a coordinator input and a coordinator output. Each coordinator subsystem communicates information concerning coordinator limitations of the coordinator subsystem to the system input of the vehicle motion control subsystem and at least one actuator control subsystem for each coordinator subsystem. Each actuator control subsystem has an actuator output communicating actuator information concerning limitations of the actuator control subsystem to the coordinator input of an associated one of the plurality of coordinator subsystems. The vehicle motion control subsystem calculates at least one coordinator demand signal, with the at least one coordinator demand signal being determined according to the coordinator information concerning limitations and the intended driving demand. The vehicle motion control subsystem outputs the at least one coordinator demand signal to the coordinator input of at least one of the coordinator subsystems. Each coordinator subsystem calculates at least one actuator demand signal, with the at least one actuator demand signal being determined according to the actuator information concerning limitations and the at least one coordinator demand signal outputted to the at least one of the coordinator subsystems. Each coordinator subsystem outputs the at least one actuator demand signal to at least one actuator control subsystem. A combination of each at least one actuator demand signal provides directions for the at least one

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actuator control subsystem to perform the vehicle behavior modification of the intended driving demand.

The prior art of record does not disclose or suggest the above noted features of claim 22. As an initial matter, Applicants submit that the rejection of claim 22 includes all of the deficiencies of the rejection of claim 1 as outlined above. Accordingly, Applicants submit that as the Office Action has not met the burden of rejecting claim 22, there is no suggestion or motivation for making the modification as set forth in the Office Action, and a modification as set forth in the Office Action would not include all of the features of claim 22. Notably, the Office Action has not stated where the Sigl '735 patent discloses or suggests a coordinator subsystem communicating coordinator limitations of the coordinator subsystem to a control input of a vehicle motion control subsystem. Accordingly, claim 22 is in condition for allowance.

All pending claims 1-22 are believed to be in condition for allowance and a Notice of Allowability is therefore earnestly solicited.

Respectfully submitted,

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